REMARKS

Present Status of Application

The Examiner is thanked for the thorough examination of this application. The non-FINAL Office Action, however rejected all claims 1-19. Specifically, the Office Action rejected claims 1-3, 6-8, 13-14, 16-17, and 19 under 35 U.S.C. § 102(e) as allegedly anticipated by U.S. Patent 6,331,855 to *Schauser* (hereafter *Schauser*). The Office Action also rejected claims 10-12 under 35 U.S.C. § 103(a) as allegedly obvious over *Schauser*. The Office Action rejected claims 5, 15, and 18 under 35 U.S.C. § 103(a) as allegedly obvious over *Schauser* in view of U.S. patent 5,990,852 (to *Szamrej*). Finally, the Office Action rejected claims 4 and 9 under 35 U.S.C. § 103(a) as allegedly obvious over *Schauser* in view of U.S. Patent 6,094,453 (to *Gosselin*). For at least the reasons set forth herein, Applicants disagree with the rejections and respectfully request that they be reconsidered and withdrawn.

Fundamental Distinction of Claimed Embodiments (applicable to all claim groups)

There are several significant distinctions between the embodiments defined in the independent claims of the present application and the teachings of *Schauser*. For example, the claims of the present application define apparatuses and methods that operate at the frame-buffer level. That is, the graphics information that is communicated across the network is graphics information from the frame buffer. In this regard, independent claim 1 defines "*a frame buffer memory*," "a temporary memory [for storing] *a current frame* of graphics information," "comparison logic for comparing a portion of the *current frame* ... previous frame," and "transmission logic for transmitting the portion of the *current frame...*" Independent claims 14 and 16 also have language that defines their applicability to the frame buffer level.

In contrast to this claimed aspect, or even the communication of graphics information across a network generally, the teachings of *Schauser* appear to be concerned with the control of a remote (or target) computer, and the implementation of the system of Schauser appears to occur at a much higher level than the hardware/frame buffer level of the claimed embodiments. In this regard, *Schauser* states:

> *The present invention provides thin-client, thin-host software space for remote desktop access and collaborative work.* It enables easy, on-demand access to any computer wherever and whenever needed through all types of terminals, including Java-enabled Web browsers. *The host software is a very small executable* that can be downloaded and started through any web browser. *Because it does not replace any device drivers, but rather, polls the screen for any changes, it can be started without requiring a re-boot and does not introduce any incompatibilities with other running programs.* Similarly, the client software is also a very small software program, which can also be implemented as a small downloadable Java applet. The size of the client and host software is such that both can be downloaded quickly over a low-bandwidth internet connection.
>
> Due to the small size and lack of incompatibilities, the software provided by the present invention is very well suited for technical support. *All that is required for a technical support engineer to help a customer is for both to point their browser to a web site that contains the software. The customer quickly downloads the host software, the support engineer downloads the client applet, the connection is automatically established and the support engineer can help the customer as if sitting right next to him. The host sends the desktop image to the client, which then displays the host desktop inside the browser window.* The client forwards any keyboard or mouse input to the host, which responds to them just as if they were made directly on the host machine. Any changes on the host desktop can be seen in the client browser window. Thus it is possible to transparently work from any client on the remote host. In fact, multiple clients can connect simultaneously to the host for collaborative purposes.

(*Emphasis added*, Schauser, col. 3, lines 11-44.)

Thus, not only does the system of Schauser not entail any hardware changes to conventional computers, it does not even entail any device driver changes. Instead, the system of Schauser appears to be implemented through small host and client executables or software programs.

Such executables or software programs are outside the context of the frame buffer, and therefore outside the scope of the claimed embodiments. To assist the Examiner, the

undersigned provides the following drawing, which was obtained from an article entitled "Introduction to OpenGL on Windows" taken from the Web site maintained by the OpenGL organization (www.opengl.org). Specifically, the figure was obtained from: http://www.opengl.org/developers/documentation/OGL_userguide/OpenGLonWin-10.html)

Windows application

GDI	OpenGL	Other APIs

Display driver

Display hardware
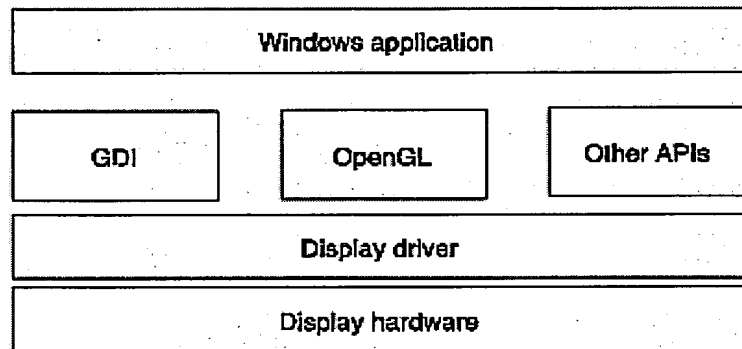
As can be readily observed from the figure, and verified from a number of other publicly-available sources, the "host executable" or "client software" reside in the uppermost (illustrated) "Windows application" level, as the software of Schauser apparently interacts or embeds within the host browser (which is at the Windows application level). Importantly, the software of *Schauser* does NOT reside at the level of the frame buffer (within the display hardware), and as such, the teachings of *Schauser* cannot properly anticipate the claims of the present application.

For at least this reason the rejections of all claims are fundamentally misplaced and should be withdrawn.

Discussion of Claims 1-13

Turning now to the specific claim rejections, independent claim 1 was rejected under 35 U.S.C. § 102(e) as allegedly anticipated by *Schauser*. Applicants respectfully submit that this rejection should be reconsidered and withdrawn.

Independent claim 1 recites:

> 1. An apparatus for communicating graphics across a network comprising:
>
> *a frame buffer memory* for storing and maintaining at least a. portion of a previous frame of graphics information, the graphics information being contained in a video signal;
>
> *a temporary memory configured to store at least a portion of a current frame of graphics information*;
>
> *comparison logic* for comparing a portion of the current frame of graphics information with a corresponding portion of the previous frame; and
>
> *transmission logic* for transmitting the portion of the current frame to a destination computer, *if the comparison logic determines that the portion of the current frame of graphics information differs from the corresponding portion of the previous frame by more than a predetermined measure.*

(*Emphasis added.*) Claim 1 patently defines over *Schauser* for at least the reason that *Schauser* fails to disclose the features emphasized (bold and italic) above.

As discussed above, the embodiments of claim 1 defines an apparatus that operates at the frame buffer level. In this regard, the apparatus comprises comparison logic that compares graphics information stored in a frame buffer memory. As discussed above (which discussion is repeated and realleged herein), *Schauser* does not disclose or teach this comparison logic. In addition, claim 1 calls for transmission logic that transmits a portion of a current frame (i.e., information from the frame buffer memory) to a remote computer. The transmission to a remote computer (in order to control a target computer) of information though software that is embeds within a browser (as taught by *Schauser*) is NOT the same as, nor the equivalent of, the transmission of data from a frame buffer memory. For at least this reason, claim 1 defines over the cited art.

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Further, and as a separate and independent reason for the patentability of claim 1, claim 1 calls for the transmission logic to transmit the compared graphics information "if the comparison logic determines that the portion of the current frame of graphics information differs from the corresponding portion of the previous frame by more than a predetermined measure." *Schauser* teaches no such feature.

In fact, the Office Action (page 3, line 6) cites col. 5, lines 6-23 of *Schauser* for allegedly teaching this feature. In fact, this portion of *Schauser* actually states:

> The CPU 12 may poll a particular line, or a portion (or portions) of a particular line or area, as described in detail below. The portion (or portions) may be predetermined portions, statistically determined portions or arbitrarily determined portions. *For example, the CPU 12 may poll a number of subregions (tiles) or lines of the screen, to determine if a change has occurred.* In that regard, the subregions (tiles) or lines may be predetermined location(s), statistically determined location(s) or arbitrarily determined location(s). In particular, each frame of pixels that are currently displayed are stored in the frame buffer 18, while the pixels representing a previously displayed image, for example, the last updated image, are stored in system memory 16. The technique(s) of the present invention compares a portion of the currently displayed image to a corresponding portion of a previously displayed image to determine if changes have occurred. *If so, the changes are stored and/or forwarded to the remote computer 4 (FIG. 1A).*

Rather than a comparison of data within a frame buffer (as claimed), *Schauser* apparently teaches the comparison of a lines, areas, tiles, or regions (which are statistically determined or arbitrarily determined) to determine if any changes have occurred. If so, the changes are stored and/or forwarded to the remote computer. However, there is no teaching whatsoever in *Schauser* as to any threshold measure that triggers or limits the transmission. In this regard, *Schauser* appears to teach the transmission of each block if there is any detectable difference, whereas claim 1 specifically defines an apparatus that transmits frame buffer information to a remote computer "if the comparison logic determines that the portion of the current frame of graphics information differs from the corresponding portion of the previous frame *by more than a predetermined measure.*" For at least this additional reason, claim 1 defines over the cited art.

For at least the foregoing reasons, Applicants respectfully submit that the rejections of claim 1 are misplaced and should be withdrawn. Of course, the rejections of claims 2-13, which depend from claim 1 (in therefore incorporate all of the features of claim 1), should be withdrawn for at least the same reasons.

Discussion of Claims 14-15

Independent claim 14 was rejected under 35 U.S.C. § 102 as allegedly anticipated by *Schauser*. Applicants respectfully submit that this rejection should be withdrawn.

Independent claim 14 recites:

> 14. An apparatus for displaying graphics information received from a remote computer and communicated across a network comprising:
> an ***input for receiving packetized graphics information***; and
> ***input logic configured to format and store a portion of a frame of graphics information received at the input into an appropriate location of a frame buffer memory, the portion being an amount less than the whole frame buffer***.

(*Emphasis added.*) Claim 14 patently defines over *Schauser* for at least the reason that *Schauser* fails to disclose the features emphasized (bold and italic) above.

Unfortunately, the Office Action did not provide separate and independent treatment or discussion of claim 14, but instead grouped it with claim 1 (setting forth only a single rejection for both claims – notwithstanding the significant differences between the two claims). As described above, *Schauser* does not operate at the frame buffer level and as such does not teach the "input logic" claimed by claim 14. In this regard, claim 14 defines input logic that is configured to receive packetized graphics information, then formats and stores that information in a portion of (and less than all) ***the frame buffer memory***. *Schauser*, instead, appears to teach the integration of software in browser software (or other application-level software) for communicating certain information between computers or workstations, in connection with the remote control of a computer or workstation. Significantly, *Schauser* fails

to teach the claimed feature of receiving and formatting graphics information to be directly stored in a frame buffer memory.

For at least this reason (and in addition to the fundamental distinction discussed above – which is repeated and realleged herein), Applicants respectfully submit that the rejection of claim 14 is misplaced and should be withdrawn. Of course, the rejection of claim 15, which depends from claim 14 (and incorporates all of the features and limitations of that claim), should be withdrawn for at least the same reasons.

Discussion of Claims 16-19

Turning now to independent claim 16 was rejected under 35 U.S.C. § 102 as allegedly anticipated by *Schauser*. Applicants respectfully submit that this rejection should be withdrawn.

Independent claim 16 recites:

> 16. A method for communicating graphics across a computer network comprising:
> *storing at least a portion of a frame of graphics information obtained from a video signal*;
> *receiving* at least a portion of *a current frame of graphics information*;
> *comparing a portion of the current frame of graphics information* with a corresponding portion of the stored frame of graphics information;
> *if the compared portion of the current frame of graphics information differs by at least a predetermined amount from the corresponding portion of the stored graphics information, then transmitting the compared portion of the current frame of graphics information to a destination computer*; and
> *if the compared portion of the current frame of graphics information differs by at least a predetermined amount from the corresponding portion of the stored graphics information, then overwriting the corresponding portion of the stored graphics information with the compared portion of the current frame of graphics information*.

(*Emphasis added.*) Claim 16 patently defines over *Schauser* for at least the reason that *Schauser* fails to disclose the features emphasized (bold and italic) above.

As with claim 14, the Office Action did not provide a separate and independent treatment or discussion of claim 16, but instead grouped it with claim 1 (setting forth only a single rejection for claims 1, 14, and 16 — notwithstanding the significant differences between the claims). As described above, *Schauser* does not operate at the frame buffer level and as such does not teach the "storing at least a portion of a frame of graphics information obtained from a video signal," as claimed by claim 16. In this regard, the method of claim 16 compares graphics information stored in a frame buffer memory, and *Schauser* does not teach such a comparison step. In addition, claim 16 calls for the transmission of a portion of a current frame (i.e., information from the frame buffer memory) to a remote computer. The transmission to a remote computer (in order to control a target computer) of commands or signals at the application program level (as taught by *Schauser*) is NOT the same as (and therefore cannot properly anticipate) the transmission of data from a frame buffer memory. For at least this reason, claim 16 clearly defines over the cited art.

Further, and as a separate and independent reason for the patentability of claim 16, claim 16 calls for the transmission of the compared graphics information *"if the compared portion of the current frame of graphics information differs by at least a predetermined amount from the corresponding portion of the stored graphics information." Schauser* teaches no such feature. The Office Action wholly fails to address this element, as noted in connection with claim 14 above.

For at least the foregoing reasons, Applicants respectfully submit that the rejection of claim 16 is misplaced and should be *withdraw*. The rejections of claims 17-19, which depend from claim 16 (and incorporate all of the features and limitations of that claim), should be *withdraw* for at least the same reasons.

Additional Discussion of Claims 5, 15, and 18

The Office Action rejected claims 5, 15, and 18 under 35 U.S.C. § 103(a) as allegedly obvious over *Schauser* in view of *Szamrej*. As noted above, dependent claims 5, 15, and 18 patently define over the cited art for at least the reason that they depend from, and incorporate the features of, independent claims that define over the cited art. In addition, Applicants respectfully submit that there is no proper motivation or suggestion to combine these selected teachings from these references, in the manner alleged by the Office Action.

In this regard, it is well-settled law that in order to properly support an obviousness rejection under 35 U.S.C. § 103, there must have been some teaching in the prior art to suggest to one skilled in the art that the claimed invention would have been obvious. W. L. Gore & Associates, Inc. v. Garlock Thomas, Inc., 721 F.2d 1540, 1551 (Fed. Cir. 1983). More significantly,

> "The consistent criteria for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that this [invention] should be carried out and would have a reasonable likelihood of success, viewed in light of the prior art. ..." Both the suggestion and the expectation of success must be founded in the prior art, not in the applicant's disclosure... In determining whether such a suggestion can fairly be gleaned from the prior art, the full field of the invention must be considered; for the person of ordinary skill in the art is charged with knowledge of the entire body of technological literature, including that which might lead away from the claimed invention."

(Emphasis added) In re Dow Chemical Company, 837 F.2d 469, 473 (Fed. Cir. 1988).

In this regard, Applicants note that there must not only be a suggestion to combine the functional or operational aspects of the combined references, but that the Federal Circuit also requires the prior art to suggest both the combination of elements and the structure resulting from the combination. Stiftung v. Renishaw PLC, 945 Fed.2d 1173 (Fed. Cir. 1991). Therefore, in order to sustain an obviousness rejection based upon a combination of any two or more prior art references, the prior art must properly suggest the desirability of combining the particular elements to create a method and apparatus for communicating graphics across a

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network as claimed by the Applicants.

Instead, the Office Action has alleged only that it would have been obvious to combine *Szamrej* with *Schauser* "in order to provide a screen transfer method that is efficient in use of CPU resources, memory, and bandwidth (col. 2, lines 11-13)." (Office Action, p. 5, lines 10-12) The allegation that a <u>result</u> of a combination (e.g., that the combination would <u>result</u> in an efficient use of CPU resources, memory, and bandwidth") does not satisfy the legal requisites for a proper motivation or suggestion to combine features out of references (which must be made without the use of hindsight). Further, as the relevant claims do not specify CPU resources or bandwidth, the alleged motivation is not sufficiently relevant to the claimed subject matter to merit a suggestion to combine features from the two references. For at least this additional reason, the rejection of claims 5, 15, and 18 should be withdrawn.

Additional Discussion of Claims 4 and 9

The Office Action rejected claims 4 and 9 under 35 U.S.C. § 103(a) as allegedly obvious over *Schauser* in view of *Gosselin*. As noted above, dependent claims 5, 15, and 18 patently define over the cited art for at least the reason that they depend from, and incorporate the features of, independent claims that define over the cited art. In addition, Applicants respectfully submit that there is no proper motivation or suggestion to combine these selected teachings from these references, in the manner alleged by the Office Action.

Similar to the result-oriented rationale that the Office Action used in connection with claims 5, 15, and 18, the Office Action merely alleged that the combination would have been obvious "in order to provide improved video transmission (col. 4, lines 2-6)." (Office Action, p. 6, lines 6-7). The mere fact that a combination could yield improved results (even if true) falls far short of the legal standards for motivating or suggesting a combination of teachings

from distinct references. For at least this additional reason, the rejection of claims 4 and 9 should be withdrawn.

CONCLUSION

In view of the foregoing, it is believed that all pending claims are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

No fees are believed to be due in connection with this amendment and response. If, however, any fees are deemed to be payable, you are hereby authorized to charge any such fees to Hewlett-Packard Company's deposit account No. 08-2025.

Respectfully submitted,

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